

### ABSTRACT

A photonic crystal device including a method of forming the photonic crystal device is provided wherein the photonic crystal device comprises a first medium having a thickness and periodically defining a plurality of periodically spaced concave portions. The concave portions having a depth less than the thickness of the first medium. A second medium fills the concave portions. One layer of the device, including both the first and second medium, acts as an optical waveguide layer, or photonic crystal. Another layer is at least partially formed from the first medium, such that the first and second layers share a common medium. A method of forming the photonic crystal device including the steps of applying a resist layer to a first medium, removing portions of the resist layer and corresponding portions of the first medium to form vacancies, and filling the vacancies with a second medium.